Modeling 301: Microsimulation

May 18, 2016

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Caliper

TransModeler

Traffic Simulation Software

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TransModeler

- Simulates car, truck, and transit operations
- Visualizes flow and signal operations
- Identifies problematic traffic locations
- Provides measures of effectiveness (MOE) for evaluation

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Why TransModeler

- Integrated with the regional travel demand model
- Model setup and network development
- Model calibration and validation
- Capability of performing HCM 2010 analyses

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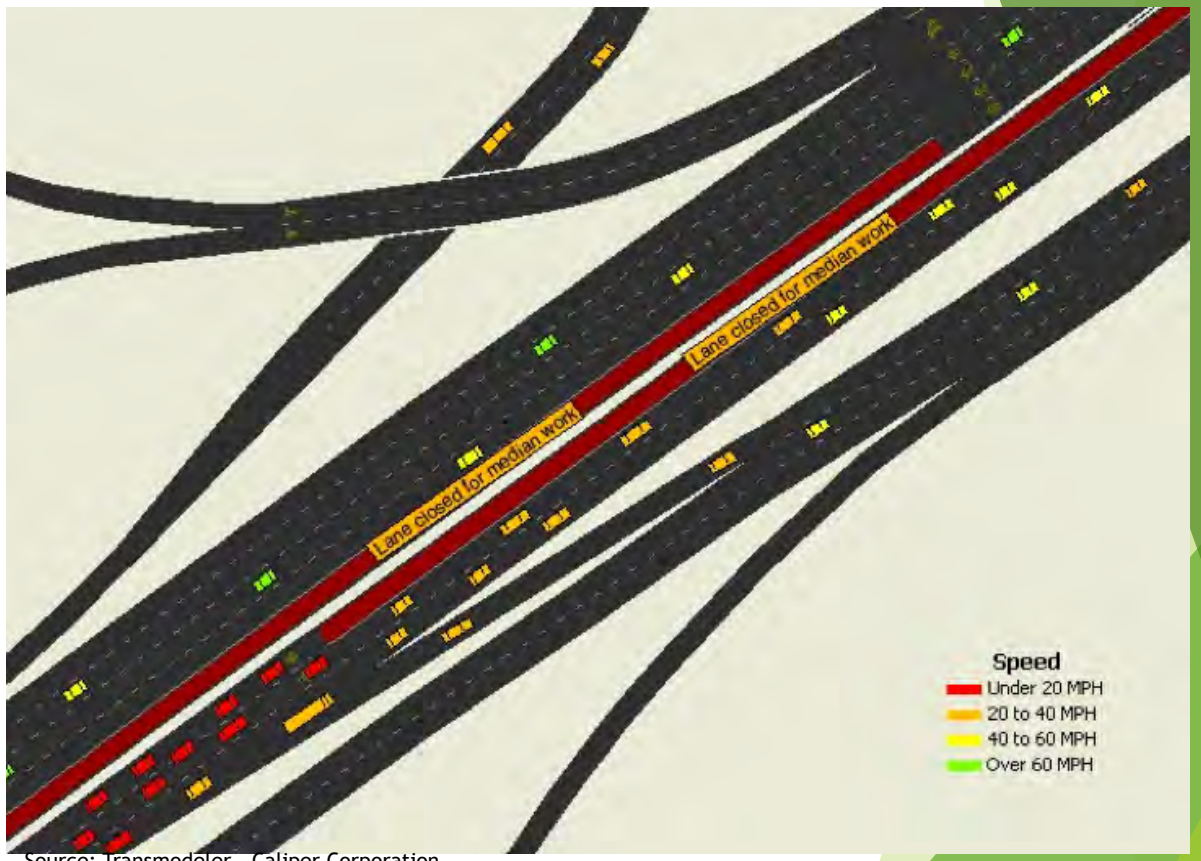
Measures of Effectiveness

- Traffic flow and travel time
- Delay and queue length
- Highway Capacity Manual 2010 Level of Service Analysis
- VMT (Vehicle Miles Traveled), VHT (Vehicle Hours Traveled), and Mean Speed (VMT/VHT)

Visualization of Travel Speeds

Source: Transmodeler - Caliper Corporation.



Source: Transmodeler - Caliper Corporation.

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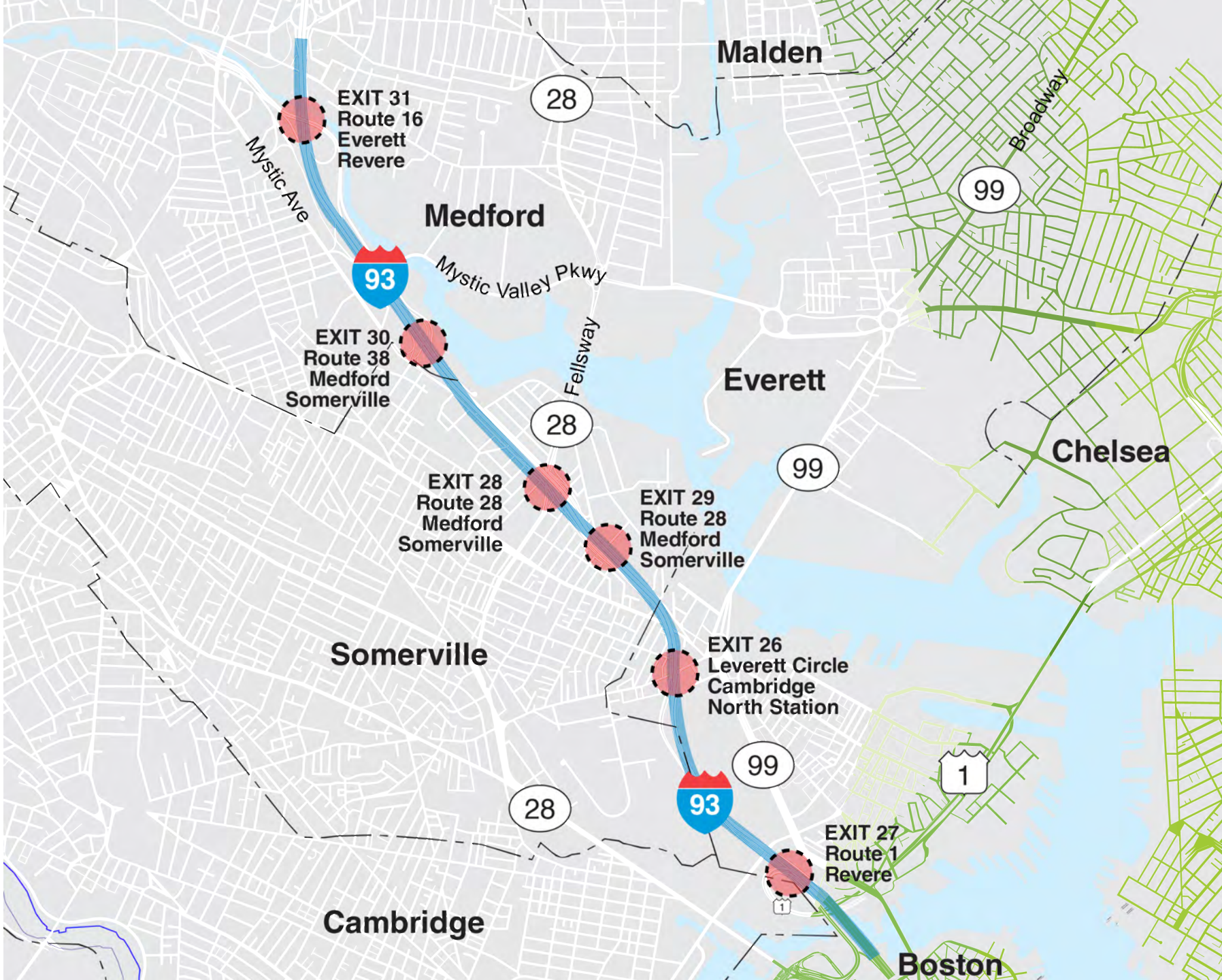
I-93 Microsimulation Study Corridor

- Ramps to/from Route 16 (I-93 Interchange 31)
- Ramps to/from Route 28 (I-93 Interchanges 28 to 30)
- Ramp to Cambridge Street (I-93 Northbound Exit 28)
- Ramps to/from Route 1 (I-93 Interchange 27)
- Leverett Circle Connector
- Government Center Connector



Why Synchro

- Leading traffic analysis software in the country
- Over 20 years of industry use
- Endorsed by MassDOT Highway Division and other state departments of transportation

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What are the capabilities of Synchro

- Analyzes intersections, arterials, and a network of roadways
- Capability of performing HCM 2010 analyses
- Calculates measures of effectiveness
- Compares scenarios/alternatives

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Calibration of Synchro

Source: Central Transportation Planning Staff.

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Measures of Effectiveness

- Levels of service
- Intersection delay
- Total arterial or network delay
- Total travel times
- Average travel speeds
- Number of stops
- Average queue lengths

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Level of Service

Level of Service	Signalized (Delay) Vehicle/second	Unsignalized (Delay) Vehicle/second
A	0-10	0-10
B	10-20	10-15
C	20-35	15-25
D	35-55	25-35
E	55-80	35-50
F	>80	>50

Questions and Comments

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Proposed Signalized Intersections for Analysis

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Proposed Signalized Intersections

- 52 total locations
- 7 Complex (multiple) intersections
- 68 total proposed intersections